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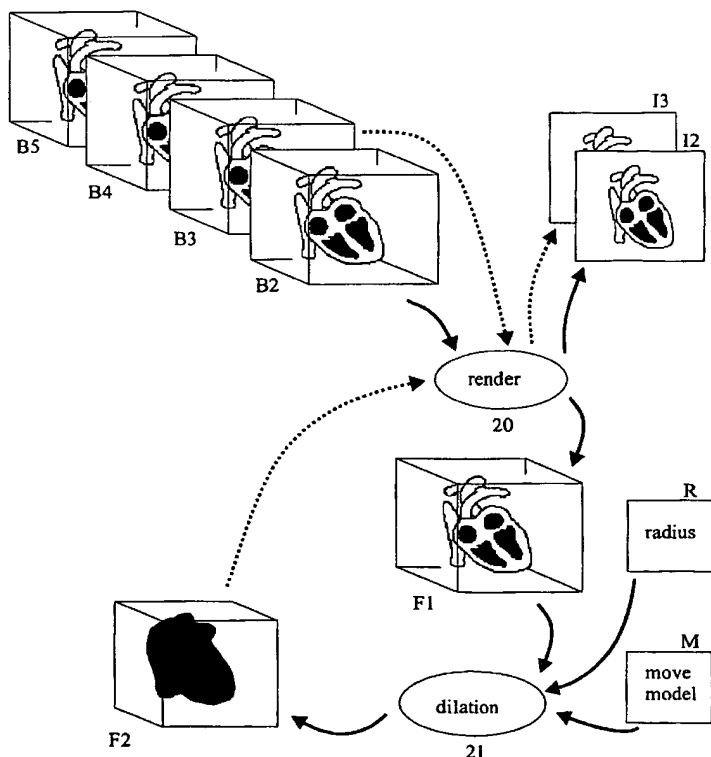
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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR VISUALIZING A SEQUENCE OF VOLUME IMAGES



(57) Abstract: The invention relates to a method and to an apparatus for visualizing a sequence of volume images of a moving object. Methods and apparatus of this kind are used in cases where a sequence of three-dimensional volume images is to be rendered as a two-dimensional image, for example, for a viewer. The invention utilizes the fact that usually only the volume values of a part of the voxels are relevant for the derivation of a two-dimensional image from a volume image. In the case of a sequence of volume images of a moving object, the derivations of the two dimensional images can be accelerated by storing the voxels which are relevant for the visualization during the visualization of a first volume image and by deriving the relevant two-dimensional image during the visualization of a second volume image exclusively from the volume values of the stored voxels and from voxels neighboring such stored voxels. The selection of volume values of neighboring voxels for use is dependent on the motion of the object. The voxels of the second volume image which are relevant for the visualization are stored again and used accordingly for the visualization of a third volume image. These steps are repeated accordingly for further volume images of the sequence.

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## INTERNATIONAL SEARCH REPORT

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## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)  
EPO-Internal, BIOSIS, COMPENDEX, EMBASE, FSTA, INSPEC, PAJ, IBM-TDB, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HAN-WEI SHEN ET AL: "Differential volume rendering: a fast volume visualization technique for flow animation" VISUALIZATION, 1994., VISUALIZATION '94, PROCEEDINGS., IEEE CONFERENCE ON WASHINGTON, DC, USA 17-21 OCT. 1994, LOS ALAMITOS, CA, USA, IEEE COMPUT. SOC, 17 October 1994 (1994-10-17), pages 180-187, CP20, XP010100605 ISBN: 0-8186-6627-7	1,3-5,7, 11
Y	abstract page 181, left-hand column, line 3 -page 182, right-hand column, line 31 page 183, right-hand column, line 9 - line 39 page 184, left-hand column, line 17 -right-hand column, line 32 --- -/--	2,6,8-10

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 169 817 B1 (PARKER KEVIN J ET AL) 2 January 2001 (2001-01-02) abstract column 1, line 5 - line 19 column 2, line 36 - line 63 column 3, line 8 - line 42 column 17, line 53 -column 18, line 25	2,8-10
Y	YAGEL R ET AL: "Accelerating volume animation by space-leaping" VISUALIZATION, 1993. VISUALIZATION '93, PROCEEDINGS., IEEE CONFERENCE ON SAN JOSE, CA, USA 25-29 OCT. 1993, LOS ALAMITOS, CA, USA, IEEE COMPUT. SOC, US, 25 October 1993 (1993-10-25), pages 62-69, XP010138147 ISBN: 0-8186-3940-7 abstract	6
A	page 62, right-hand column, line 1 -page 63, left-hand column, line 21 page 63, right-hand column, line 10 -page 66, left-hand column, line 6	1,3-5, 7-11
A	SHEN H-W ET AL: "A fast volume rendering algorithm for time-varying fields using a time-space partitioning (TSP) tree" VISUALIZATION '99. PROCEEDINGS SAN FRANCISCO, CA, USA 24-29 OCT. 1999, PISCATAWAY, NJ, USA, IEEE, US, 24 October 1999 (1999-10-24), pages 371-545, XP010364978 ISBN: 0-7803-5897-X abstract page 371, right-hand column, line 3 -page 372, left-hand column, line 10 page 372, right-hand column, line 23 -page 373, left-hand column, line 4 page 374, left-hand column, line 8 -right-hand column, line 33	1,3-7,11

# INTERNATIONAL SEARCH REPORT

Information on patent family members

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PCT/IB 03/05130

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